THE BOSTON
Medical and Surgical
JOURNAL

OFFICIAL ORGAN of THE MASSACHUSETTS MEDICAL SOCIETY and of THE NEW ENGLAND SURGICAL SOCIETY

$5 per Annum, 15c per copy
Vol. CLXXXII, No. 3

THURSDAY, JANUARY 15, 1920

Published weekly in Boston, at 126 Massachusetts Avenue

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THE ORIGIN OF THE INTRAPELVIC TREATMENT OF THE STUMP AFTER SUPRAVAGINAL HYSTERECTOMY FOR FIBROID TUMOR OF THE UTERUS.*

BY J. RIDDLE GOFFE, A.M., M.D., F.A.C.S., NEW YORK,

Professor of Gynecology, New York Polyclinic Medical School and Hospital; Consulting Surgeon, Woman's Hospital.

IT is the disposition and custom of the medical student as he sees surgical methods and procedures enacted before him from day to day to take them for granted as methods and procedures that, as a matter of course, have existed for all time as finished products, and are now being passed on to him. Little does he realize the toil and solicitude with which they have been brought into the world until, by some fortuitous circumstance, he discovers that they have a history, reaching back perchance through many decades, evolved from generation to generation down to the present day. A similar attitude obtains also to a certain extent in the general profession. Take for example the procedure of ligating the pedicle of a simple ovarian cyst and dropping it back into the pelvic cavity. How difficult to realize that any other usage could ever have been in vogue. But although this method was used by Ephriam McDowell, the father of ovariotomy, in the first recorded case of ovarian tumor that was ever removed, the disastrous consequences from secondary hemorrhage and sepsis that followed its use in the hands of his successors led the profession to resort to transfixing the pedicle with pins or fastening it with clamps and leaving it projecting through the abdominal wound. And this was the prevalent method even down to about 1878, when it was abandoned and the original technique universally adopted.

Now I doubt not that the present method of disposing of the pedicle after supravaginal hysterectomy for fibroid tumors, which is employed almost universally by operators today and viewed by thousands of students, is regarded by them as obviously the most natural way and probably employed by the first operator, and that women afflicted with fibroids have been relieved through unrecorded time in the same manner.

But the history of the invention of this procedure represents an entirely different picture.

* Read before the American Gynecological Society, June, 1919.

The various efforts to remove fibroid tumors were fraught with great suffering and pain to the patients, attended by most unsatisfactory results and followed by a frightful death rate. The method naturally suggesting itself was that employed in removing ovarian tumors, viz: to constrict with a ligature, usually rubber elastic, a steel clamp, a wire or chain écraseur, to bring it up through the abdominal wound and transfix it with long pins, which extended out onto the abdomen to keep it from slipping back into the abdominal cavity. The first consideration was to control the hæmorrhage, and the second, to prevent infection from the sloughing stumps. As a typical picture of the standard operation let me quote you the description of an operation by the eminent, well-known surgeon, L. A. Stimson, of New York, and published in the *Medical Record* as late as October 4, 1884:

"After division of the peritoneum, a pedunculated tumor with long pedicle was turned out. The left ovary was found to lie at some distance from the uterus and a double silk ligature was passed through the broad ligament below the pampiniform plexus by means of an ivory pin and tied on each side of the ovary; the latter was then cut off. The uterus, studded with tumors, was then drawn forcibly up, and its neck, which was long and free, was transfixed from backward, and an ivory pin, and a double India rubber cord 4 millimeters in diameter was drawn through and tied around each half. On the left side, the India rubber ligature passed just below the ligature that had just been placed upon the ovary; on the right side it passed on the outside of the ovary and embraced the entire thickness of the broad ligament. Each ligature was drawn very tight and secured by tying it in a single knot and fastening the ends together close to the knot by a loop of silk. The uterus was then cut off and the stump brought up to the lower angle of the wound and transfixed with two long pins close to the ligatures in the distal side. The peritoneum, the muscular layer and the skin were each united with a continuous catgut suture and three silver wire and button sutures, not including the entire thickness of the wall, applied to bear the strain. A decalcified bone drain was placed in the parietal wound between the skin and the peritoneum, extending from the upper angle of the wound to the stump; iodoform gauze and body bandage applied."

Dr. Stimson evidently considered this a masterful piece of work or he would not have published it. And this was only a few years before I invented my procedure.

The after-treatment was a source of constant solicitude and consisted of watchful care of the stump, turning the key of the écraseur or the nuts of the clamp every day or two as the pressure cut into the pedicle or the tissues shrunk. When necrosis began, the stump was kept moist with sulphate of iron or dried with iodoform powder. It was difficult to prevent infection and the patient died of septic peritonitis or the pedicle tore away and fatal hæmorrhage ensued. The death rate was appalling.

TABLE I.—CASES REPORTED BY KNOWLSLEY THORNTON, 1882.

	Cases	Deaths	Recoveries
Pean, up to November, 1879	46	16	30
Spencer Wells, to November, 1881	39	28	11
Billroth, to March, 1880	25	15	10
Knowlsley Thornton to August, 1882	25	9	16
Bantock, to 1882	21	6	15
Schroeder, to December, 1879 ..	18	7	11
Hogas and Kaltenbach, to 1881	12	1	11
Savage, to 1881	9	3	6
Thomas, to September, 1880	7	3	4
	202	80	112

Such was the treatment of fibroid tumors during my internship at the Woman's Hospital, 1881 to 1883. The death rate from ovariotomy at that time was 25 per cent., and from hysterectomy for fibroid tumors 30 per cent., 40 per cent., 50 per cent., and even higher. The few that recovered endured a long, painful, sickening convalescence of from six weeks to two or three months, many of the patients being crippled for life by a painful distorted bladder, the aching drag of the stump upon the abdominal wall, or a ventral hernia.

The horrors of the operation and the sad fate of these unfortunate patients made a deep and abiding impression upon me, and I pondered the situation well. I had not yet begun any systematic reading of either current medical literature or any standard works, and I knew nothing of what was going on in the surgical world outside of what my eyes had seen. I could not, however, get away from the conviction that, sometime, some way would be devised of treating the pedicle after supravaginal hysterectomy so that it could be dropped back into the abdomen and the cavity closed as in ovariotomy. The conditions upon which such an effort should be based

were: that it must be safe—safe against hæmorrhage at the time of the operation (for I had seen patients die of hæmorrhage upon the operating table); safe against subsequent hæmorrhage, and safe from sepsis due to suppuration of the stump.

These three essential factors were constantly before my mind, and I considered them in every aspect. With a clamp upon the cervix, it could not, of course, be dropped into the pelvis. But why a clamp? Why not a ligature? If in ovariotomy the pedicle ligature did not slip or relax until the blood-vessels were occluded, why should it not accomplish the same results here? Or perhaps the ligature might be so placed as to compress the blood-vessels against the cervix as they coursed through the broad ligaments, and thus afford hæmostasis. That was what the elastic ligature did that was applied before the fundus and tumor were cut away in Stimson's operation, so that the clamp could be applied. Why not the ligature? But, of course, the pedicle must be transfixed to prevent slipping of the ligature. Well, the bladder had to be dissected off the tumor and the uterus to apply the clamp; the ligature must be applied in the same place by transfixing the cervix with a double ligature, tying either side, and throwing the bladder over it. It seemed feasible, but would I dare to do it? Had any one ever dared to do it? Not that I had ever heard—nor did I know that any one had ever suggested it.

With this picture in my mind, I went over in my day dreams and sometimes in the night, the successive steps of the standard operation that I had seen; the abdominal incision, the curved incision over the bladder, the turning down of the bladder and its peritoneal flap out of harm's way, the application of the elastic ligature around the whole mass of uterus and broad ligaments, the amputation of the mass, the adjustment and tightening of the clamp, the removal of the elastic ligature, the passing of the long pins through the cervix underneath the clamps, the stitching of the bladder and cervical peritoneum to the abdominal peritoneum to prevent leakage into the abdominal cavity, the adjustment of decalcified bone drains and gauze packing and the final stitching up of the wound. Then I would go over the steps of my fancied procedure, comparing one with the other, step by step, until it became somewhat of a nightmare, but always with the conviction that it had in it the promise of success and was worth a trial. With this conviction in my mind, with the reckless assurance of the young hospital graduate, I waited my first case.

Upon leaving the Woman's Hospital, I had no connection with any hospital service, so my prospects of a chance to win my spurs in this field were anything but alluring, especially as I had secured a class at Memilt Dispenssary in diseases of children and devoted my spare time, of which I had abundance, to that specialty. Days and weeks and months and years slipped by until at last the long awaited day, May 26, 1888, arrived—just five years to a month since I left the hospital doors. Upon that day there appeared at my office Ann McE., of New York City, who gave the following history:

A cook, aged 40, married 14 years ago. The husband had lived only five months; and she remained a widow since. She was never pregnant, and her menstrual history was normal. For the past three years had suffered backache and difficult and painful defæcation; for the past six months, frequent and painful micturition. The latter had so annoyed and worried her and deprived her of sleep, that she had lost flesh and she was in a desperately nervous condition.

She had consulted a prominent gynecologist of this city, who told her that she had a tumor and sent her to the Woman's Hospital for observation. She entered the service of Thomas Addis Emmet. After repeated examinations she finally was dismissed with the opinion that if any operation were attempted, she would die upon the table; to go home and have her teeth repaired and let herself alone; especially must she avoid any ambitious young doctor who might want to operate upon her. The following day, May 26, 1888, she appeared at my office, told her story, and wanted to know if I could do anything.

Upon examination I found a hard, irregular fibroid tumor, with deep serrations, entirely filling the pelvis, and so deeply wedged in that even the slightest motion was impossible. Large nodules, also, reached up into the abdomen. I told her I believed I could relieve her; that the tumor could probably be lifted out of the pelvis, and, if favorable for complete removal, could be taken away. She only too gladly accepted the proffered relief and entered St. Elizabeth's Hospital. Three days later, May 29, with the assistance of A. P. Dudley, Marcus E. Tully, and George Tucker, I operated

The tumor was with the greatest difficulty lifted out of the pelvis, and I proceeded at once to its removal.

The first step was to dissect off the bladder, which had spread itself over the anterior face of the tumor to the height of six or seven inches. This was done by following the curve of the attachment of the bladder in an elliptical incision through the peritoneum across the face of the tumor, and dissecting off the bladder down to the vaginal junction. An elastic ligature was then thrown around the entire mass exclusive of the bladder, but including the ovaries and tubes of both sides, securely tied and the main part of the tumor cut away. Before severing the connection of the broad ligaments, the uterine extremity on each side was grasped by a strong clamp forceps to prevent its slipping out of the ligature. The pedicle was then transfixed below the elastic ligature, but within the flap with strong Chinese twisted silk, and tied on either side like the pedicle of an ovarian tumor. The elastic ligature was then removed. There had been no loss of blood except what escaped from the tumor when it was cut away, and a constant slight oozing from the flap that had been dissected off with the bladder.

The stump was then trimmed down as near to the ligature as was deemed safe, and the opening of the cervical canal thoroughly cauterized with pure carbolic acid. The large extent of raw surface on the bladder flap made it necessary that it should be disposed of in some way, and it occurred to me that it could be drawn over the top of the stump like a hood and, if drawn tightly enough, primary union might be secured and the distal end of the stump nourished through the flap. If not, the cervix could be dilated and used as a drainage tube. This was accordingly done, the flap reaching well down on the posterior surface of the stump below the exit of the ligature, where it was firmly stitched along its entire border with continuous catgut suture. The stump was thereby shut out of the peritoneal cavity, and was dropped back into the pelvis. The abdominal wound was closed with silk and the patient put to bed. The tumor was a hard multiple subperitoneal fibroid, extremely irregular in shape and weighed six and one-half pounds.

The patient rallied well from the operation, was free from pain, with the exception of slight backache, and had no untoward symptoms until the fourth day, when the temperature went up to 101.5°, and the fifth day to 102°. This meant suppuration of the stump under the flap with danger of pus bursting into the peritoneal cavity unless an exit was made for it some other way. Therefore I lifted the patient onto a table, slipped a bivalve speculum into the vagina to expose the cervix, through which I passed without difficulty a Simson sound and then the steel dilators. A gentle amount of pressure gave exit to a dram of thin pus and broken down tissue. A double female catheter was then passed and the cavity washed with carbolized solution, after which a nickel drainage tube about two inches in length was inserted, to which was attached a rubber tube leading out of the vulva to carry off the discharge. The dilatation was repeated every third day and the cavity thoroughly washed through a catheter for four sittings, after which the temperature continued normal, and the discharge was reduced to that of a slight leucorrhea. The patient regained her strength rapidly, was sitting up at the end of three weeks, and on June 29, just one month from the day of operation, she rode in the street-cars a distance of at least three miles, walking to and from the hospital to the car line. Shortly after this she went to the country for the summer. In September she appeared at my office, fleshy and well, but complained of a slight moisture about the vagina. Upon examination bimanually I found the stump smooth, freely movable, and about the size of a virgin uterus. Upon passing the speculum a white silk thread was discovered presenting at the external os, which, upon being lifted out, proved to be the ligature. The patient continued in perfect health and, despite the fact that she had neither uterus, ovaries, nor fallopian tubes, was a second time joined in happy wedlock in October of that year.

This was indeed a triumph. To my joy and delight the great problem seemed to be accomplished, and that, too, in the most simple, logical and natural way. Hæmorrhage was perfectly controlled so that the patient lost no blood either at the time of operation or subsequently. To be sure, suppuration had occurred, but the peritoneal cavity was protected against invasion by the peritoneal flap covering the stump, and evacuation of the pus promptly and readily secured through the natural cervical canal. Consequently the patient had survived the operation and gotten well as comfortably as after an ovariotomy. What is more, the organs of the pelvis were restored to almost ideally normal positions

and relations, all traumatic tissue was disposed of with the nicety of a plastic operation, and the abdominal and pelvic organs resumed their functions normally and satisfactorily. What a different picture from that presented by the old established method. Two cases followed this the succeeding year, in both of which all the steps of the procedure as described were carried out, the same experiences attended the convalescence, and the results were the same.

In the fourth case the technique was modified by ligating the ovarian arteries in the broad ligaments.

First I placed upon the broad ligaments outside of the ovary and tube, a strong clamp forceps reaching down to the uterine artery and, after similarly placing another near to the mass to prevent regurgitation from the uterine side, I cut the broad ligament down between them as far as their points. The other side was treated similarly and then the lower angle of these incisions was connected in a curved line; first across the anterior face of the tumor following the contour of the bladder and then the posterior through the peritoneum—to form the flaps of the stump—and the peritoneum reflected. This feature of the operation was illustrated by drawings in my original paper which I reproduce here.* An elastic ligature was now thrown around the mass inside these flaps and forced well down. The main part of the mass, including the ovaries and tubes, was cut away. The pedicle was then transfixed inside the flaps with strong Chinese twisted silk and tied on either side so as to include the uterine arteries and veins, the elastic ligature removed and the stump trimmed down. The open ends of the broad ligaments were now to be disposed of. First, the ovarian arteries were searched out and ligated with catgut. Then the flaps were brought up into position and trimmed to fit. Commencing then at the upper border of one broad ligament, the raw surface was covered in by an over-and-over continuous stitch of catgut down the width of the ligament, then over the top of the stump, stitching firmly the flaps, and then up the width of the other broad ligament to its free border; so that all there was to be seen in the bottom of the pelvis was smooth peritoneum, with this continuous line of catgut suture running across from side to side.

Upon removing the clamp forceps on the left broad ligament, when I reached the tip of it in the process of whipping over and over the edges, there came a sharp hæmorrhage from the uterine artery on that side which I had evidently cut when I severed the broad ligament. It was quickly caught, however, and ligated with catgut.

The remainder of the operation was completed as usual and the patient put to bed. The tumor was a fibromyoma and weighed four and one-quarter pounds.

The patient made an uninterrupted recovery and left the hospital December 23, thus making the fourth successive case of recovery by this method.

Here, then, was an entirely novel and original method, embracing new untried features and meeting all the requirements of a perfected surgical procedure. First and foremost it solved the problem of dropping the pedicle and closing the abdominal incision without drainage. Secondly, it covered all raw surfaces. Third, it fastened the infundibulopelvic and round ligaments to the stump, thus giving support to the pelvic diaphragm. And lastly, it restored the pelvic organs to their normal positions and relations in the pelvis, disposing of the traumatic tissue with the nicety of a plastic operation. All this I pointed out in my first paper describing the operation.

I wrote out a careful description of the operation in a detailed report of the four cases and presented it in a paper before the Obstetrical Section of the New York Academy of Medicine in March, 1890. It met with most cordial approval and many complimentary remarks at the hands of the Fellows of the Academy who discussed it; namely, Dr. Janvrin, Dr. Hanks, Dr. George Tucker Harrison, Dr. A. P. Dudley, and others. The paper appeared in the following month, April, 1890, in the *American Journal of Obstetrics and Diseases of Women and Children.* The operation was employed with varying degrees of success by Dr. Janvrin, Dr. Harrison, Dr. A. P. Dudley and others, but I have never seen any report of their work in print.

I had dared to drop the pedicle into the peritoneal cavity, I had demonstrated its safety, and its efficiency in four successful cases and the problem of fibroid tumors was then and there solved.

In September, 1892, four years and five months after my first operation, and two years and four months after the publication of my first paper, Dr. Baer, of Philadelphia, read a paper before the American Gynecological Society in which he reported 10 cases of fibroid

* Am. Jour. Obst., April, 1890.

tumors with one death operated upon by him by what he claimed was an entirely new and original operation. Now, on careful analysis the operation, in its essential features, was my operation, modified by systematically transferring the main ligature from the cervix to the uterine vessels in the broad ligaments. While this modification was a refinement in this one detail of my original operation which I gladly recognize, it was not essential to the success of the procedure; for while Dr. Baer reported 10 cases with 1 death, my first series detailed four with no death, and my second publication recounted 15 with 1 death. It was, therefore, only a modification of one feature—a refinement, to be sure, but of minor importance in comparison with my original concept; its audacity and its perfection of detail. Therefore, I claim precedence as the inventor of this operation, and if any name is to be attached to it, it should be known as the Goffe operation.

It isn't a question of non-essential detail that we are discussing today. Just how a clamp is applied or a ligature placed is insignificant in comparison with the larger question of whose was the genius to conceive the original idea; whose the daring to put it to the supreme test of actual practice on a living patient, and to demonstrate (in four successful cases) its assured safety and ultimate beneficial results over anything that had ever been undertaken in dealing with fibroid tumors. And not only that, but I venture the opinion that there is no operation in the whole range of gynæcic procedure, dealing with an equally serious condition, that is attended with so little loss of life and is fraught with so much satisfaction to both patient and operator. Today it is the accepted standardized operation in every surgical clinic throughout the world; It has made it possible, as recorded by Dr. LeRoy Braun, to operate upon 262 cases of fibroid tumor in one year, *viz.*, 1918, at the Woman's Hospital, New York, with a mortality of 4 patients or 1.52 per cent. Compare this with the record of an equal number of operators as presented by Knowlsley Thornton in 1882 by the old method; 202 cases, 80 deaths; a mortality of 39.6 per cent. (See Table I).

The credit for inventing such a procedure is an honor worth guarding with jealous care. The procedure is in some clinics known as the Baer operation and by many believed to have been invented by him. Regarding this, I desire to make the following animadversions:

My operation was a successfully demonstrated widely published and well recognized procedure before Dr. Baer performed his first operation. That Dr. Baer was perfectly familiar with my work is apparent from the internal evidence of his article itself. His title, "Supra-Vaginal Hysterectomy without Ligature of the Cervix," evinces an effort to put his work in as strong contrast to mine as possible. Then the emphatic statement reiterated, that no antiseptic is applied to the cervix, and the seeming indifference to covering the stump with peritoneal flaps bears out this contention, although later he adopted both of these steps in his technique. In my fourth case I applied clamps to the upper border of the broad ligaments and ligated both ovarian arteries in continuity in the broad ligaments. This is fully described in my original paper and illustrated by drawings showing just how clamps and ligatures are applied. What is more, I ligated the uterine artery and vein in the broad ligament on one side. Why I did not appreciate then and there the refinement of this procedure and apply it to the uterine vessels on the other side and so establish that step in the technique I can only explain by the overpowering mental impression inherited from the old operation that the cervix must be compressed. In retrospect this is the more to be wondered at because in the meantime Dr. Lewis Stimson had become a convert to the application to fibroid tumors of Freund's total hysterectomy for cancer, and minutely described and laid great stress upon the method of ligating the blood-vessels in continuity in the broad ligaments. He published two articles on this subject, one in the *New York Medical Journal*, 1889, and one in the *Philadelphia Medical News*, 1890. Both of these articles appeared before Dr. Baer did his first operation and must have been very suggestive to anyone approaching the subject with an unbiassed mind.

There is one more question that requires elucidation and that is A. P. Dudley's relation to the operation. Dr. Dudley and I were colleagues of equal rank for 18 months on the House Staff of the Woman's Hospital, New

York. We were the best of friends. Upon graduating, he went to San Francisco and became associated with Dr. Scott of that city. I never saw nor heard of him again until the day before my first operation when, to my surprise, I met him by chance upon the street, and after a little reminiscence I told him I was going to operate the following day for fibroid tumor and would be glad to have him present and perhaps give me a hand as in days of old. His response was: "Well, Goffe, I'll do it—glad to."

There were present Dr. Dudley, Dr. M. E. Tully, with whom I shared my office, and Dr. Tucker, my first assistant at the Polyclinic. Dr. Dudley and Dr. Tucker are both dead; Dr. Tully is still living. Out of courtesy, as I explained to the others, I asked Dr. Dudley to act as first assistant, which he did. He made no reference to his having done anything similar in California. He was very enthusiastic about the operation, profuse with congratulations, and was loud in his assurances that the patient would recover, " 'Cause she ought to." The one thing and the only thing that he suggested and, indeed, insisted upon was disinfecting the cervical canal with pure carbolic acid.

While in the dressing room, after the operation, we discussed the procedure in detail, and he laid great stress on my device of passing the ligature inside the peritoneal flap and covering every raw surface so that the entire stump, ligature and all, should be extraperitoneal. He was greatly impressed by it and thereupon suggested the name "intra-abdominal but extraperitoneal."

Summer came and I did not see Dr. Dudley again until autumn. He came to see me one day and said he was going to do "that operation" soon and would I assist. I assured him I would and did. A coil of the intestines was badly mixed up with the appendages of the right side and was seriously injured in its separation. All the steps of the operation, as I had done it in his presence, were carried out. Meeting him a few days later I inquired about the patient, only to learn that she had died. "What!" I said in surprise, "You don't mean it." In his characteristic way, he replied, "Yep, she died."

Dr. Dudley never put on paper or published any description of what is claimed as his part in originating this procedure. In the discussion following Dr. Baer's paper, Dr. Dudley said: "Dr. Goffe is my friend, and I would not take the slightest credit from him. But I had been talking of this method two years before Dr. Goffe read his paper. With one exception I did the same operation in California, in 1884, the exception being that the double ligature which was put around the stump was not covered by the peritoneum, otherwise the operations were identical. I assisted Dr. Goffe when he did his operation later."

Now, granting that all this is true, I cannot see how it detracts in the least from credit due me for entire originality in the procedure. Dr. Dudley says that he had been talking about this operation for two years before Dr. Goffe read his paper. That might be, and yet all his talk might have been after he had assisted me in my first operation, for that was practically two years before I read the paper.

What became of the California case no one knows. Dr. Dudley does not say whether the patient lived or died. He never put the case on record and he never repeated the operation. But that case does not detract in the least from credit due me in devising my operation. I had not heard of it. Moreover, it could have had no part in my first operation for I had thought that out in all its details before I began it, and had made all arrangements in my mind for carrying out all the successive steps of the operation before I knew that Dr. Dudley was in town or that he was to assist in any way. How otherwise should I have dared to undertake it?

As a result of my work along this line I became interested in knowing what had been done in other countries looking to a solution of the problem of fibroid tumors. At the annual meeting of this Society in 1893 I presented a paper recounting the efforts that had been made in France, Germany and the British Empire to devise a method by which the pedicle could be dropped into the pelvis. Among the distinguished men who exercised their ingenuity in this effort stand prominently the names of Kaltenbach, Schroeder, E. Martin, and Mr. Milton, Cairo Hospital, Egypt. With the exception of Milton, their methods were all faulty in one particular, that they did not safeguard the peritoneum against in-

fection and the death rate was too high to commend them to general approval.

The operation under discussion today derived no inspiration from them. It is purely American—the product of American ingenuity, courage, forethought, prudence, patience, and perseverance. It has superseded all other operations in every country of the world, and stands today without a peer as *the operation par excellence.*

RESULT OF TREATMENT OF NEUROSYPHILIS (GENERAL PARESIS AND CEREBROSPINAL SYPHILIS). REPORT OF PATIENTS' CONDITION FOUR YEARS OR MORE AFTER LEAVING HOSPITAL.

BY H. C. SOLOMON, M.D., BOSTON.

[From the Massachusetts State Psychiatric Institute, Boston.]

IN the Bulletin of the Massachusetts State Board of Insanity for February, 1916, I published a series of ten cases of neurosyphilis, eight diagnosed as general paralysis and two as cerebrospinal syphilis, to show the very favorable results that may be obtained with treatment. Many requests have been received since then asking for data as to the further outcome. The only proper criterion of the results of treatment in neurosyphilis is the condition of the patient and his ability to live a normal life in the community. Therefore it seems justifiable to reconsider these patients now that at least four years has elapsed since leaving the hospital.

A chart summarizing the findings in these cases as well as brief notes as published in 1916 is here given and then the further course to September, 1919. Only one case has been lost, No. 9. The patient was a foreigner speaking practically no English and we were unable to keep in touch with him.

1. Patient showed signs of character change for nearly two years before commitment. While in hospital had seizures resulting in transient hemiplegia of a few hours' duration. Patient's blood and spinal fluid became negative. He has been out of hospital for five months.

Patient has had 12 injections of salvarsan and diarsenol since leaving hospital eight months ago. His blood serum has now become negative. No later examination of spinal fluid has been made. He has worked consistently since discharge as a carpenter.

3. Patient had transient paralysis and frequent minor seizures, also loss of sphincter control. Has ceased to have any more such manifestations. Works as a waiter when he can get work. Feels perfectly well, where formerly he suffered much from headaches.

4. Patient has had no convulsions since treatment. Has had in all 40 injections. Has been out of hospital for six months and working as a conductor on the Boston Elevated for three months.

5. Patient has made complete recovery mentally and serologically. At work as an inspector for Massachusetts Highway Commission.

6. Patient has been taking care of her home for nearly nine months now, and recently has given birth to a child.

7. Patient has been well and taking care of her home and four children for one and one-half years. Her blood serum remains negative to the Wassermann.

8. Although patient was never entirely incapacitated, he has shown a very marked improvement. Feels more capable; suffers no more from pains and headache and forgetfulness, as formerly.

9. This case of unquestionable cerebrospinal syphilis shows the difficulty of changing the spinal fluid from positive to negative. He had 13 injections of salvarsan and enormous quantities of mercury by injections, and potassium iodide, and although his mental condition became normal, the spinal fluid had not returned to normal when treatment was discontinued.

10. This case shows the good results that may be obtained in cerebrospinal syphilis by mercury and iodide, and illustrates that one may readily confuse cerebrospinal syphilis with general paresis, only to be set right by the therapeutic test (if one holds that general paresis is not favorably affected by mercury).

The following is a summary of these same cases on September 1, 1919:

1. The patient has been working in his former position as a salesman for a biscuit firm, making a large salary. He has done this work satisfactorily for four years since leaving the hospital and has received no treatment during this period. Physical examination August, 1919, shows no neurological disorders and his Wassermann reaction is negative in the blood

serum. His personality is entirely normal. He appears to be clinically recovered. And yet we feel convinced that anyone would have considered him a case of general paralysis of the insane in 1915 when admitted, from the history, mental picture, transient hemiplegia, and laboratory findings.

2. Patient continued to be capable and self-supporting for more than three years, at the end of which time it became necessary to recommit him. He received some thirty-five injections of salvarsan during this period. This was considered insufficient treatment in consideration of his spinal fluid findings, but it was not possiable to get better coöperation, due to patient working out of town. He is again under intensive treatment.

3. Patient has been out of the hospital for more than four years and apparently as well and efficient as before his commitment. He has worked and is self-supporting. Pupils are irregular and react sluggishly, there is a slight inequality of the tendon reflexes, the abdominal reflexes are absent. In March, 1919, the blood and spinal fluid were entirely negative. Treatment has been continued to the present time, though latterly in moderate amounts and infrequently.

4. Patient has been out of hospital and self-supporting for more than four years. He has never been as alert or efficient as before his symptoms began. However, he has not shown any progression of his disease. The physical signs are the same now as when he was discharged four years ago—sluggishly reacting pupils, absence of knee jerks and ankle jerks. He shows no other tabetic symptoms. Tremors are not present and he has had no more seizures. He has continued treatment faithfully, and has had more than 100 injections of salvarsan, a number of intraspinous injections as well as mercury and potassium iodide. The Wassermann reaction in the blood serum has remained positive. The last examination of his spinal fluid in March, 1919, gave the following: Wassermann reaction doubtful (weakly positive), globulin 0, albumin normal, cells 0 per cmm., gold sol, 1 2 2 2 3 3 3 4 0 0.

5. Patient remained quite well and continued his work from November, 1915, to February, 1917, when he had a seizure, following which he was very much confused, disoriented and amnestic. He was admitted to the hospital and his spinal fluid was positive to the Wassermann reaction, globulin ++, albumin ++, cells 26 per cmm., gold sol 1112211000. The Wassermann reaction of the blood serum was negative. After ten days' residence in hospital he was allowed home. He was somewhat improved and after a few days able to go back to his work. His efficiency was never up to normal, however, and in December, 1917, he was recommitted. He was treated but without satisfactory result and he died in January, 1919, following intraventricular injection. In this case, despite the negative serology obtained while under treatment (see chart), the spinal fluid findings became positive gain, and mental deterioration went on and the disease progressed. However, he was capable of self-support during a remission of two years' duration.

6. Patient remained in very good condition mentally and physically for two years, viz., April, 1915-April, 1917. During this period she received no treatment. In April, 1917, she became depressed and deluded and was returned to the hospital. Physical examination revealed tremors and lively tendon reflexes, but no definite pathological neurology. The Wassermann reaction was positive in blood and spinal fluid. The latter showed globulin +, albumin +, cells 3 per cmm., gold sol 5555443321. She remainend in hospital under intensive treatment for eleven months and was discharged in March, 1918. Her laboratory findings were essentially unchanged at this time, the Wassermann reaction of blood and spinal fluid being positive, globulin +, albumin +, cells 0 per cmm., gold sol 55455333000. Since this time patient has been taking care of her home. She is deteriorated, however, and not her former self. However, four years and eight months after her first admission she is able to care for herself at home.

7. It is now five and one-half years since patient left the hospital. During this time she has remained perfectly well mentally and physically. She has maintained the home efficiently for husband and children. Except for physical signs, which are as last reported, she appears normal. The blood Wassermann reaction has remained negative. She has had no further treatment and no lumbar puncture during this time.

8. After about twelve months, during which period patient was in very good condition, he had a spell of confusion. For the following six months, although able to hold his position,

Number.	Initials.	Hospital Number.	Diagnosis.	Age (Years).	Duration of Symptoms before Treatment.	Date of Initial Treatment.	Nature of Treatment.	Number of Injections of Salvarsan.
I	A. W.	Psychopathic Hospital 4517.	General paralysis.	46	1 month.	4-6-'15.	Salvarsan twice weekly. Potassium iodide. Occasional mercury.	28
II.	F. L.	Psychopathic Hospital 4161.	General paralysis.	30	3 months.	3-24-'15.	Salvarsan. Potassium iodide.	8
III.	M. K.	Psychopathic Hospital 4654.	General paralysis.	39	1 year.	4-28-'15.	Salvarsan. Mercury. Potassium iodide.	22
IV.	D. S.	Psychopathic Hospital 4484.	General paralysis.	27	8 months.	5-26-'15.	Salvarsan. Potassium iodide.	18
V.	P. W.	Psychopathic Hospital 5099.	General paralysis.	45	1½ years.	7-6-'15.	Salvarsan. Potassium iodide.	14
VI.	F. A.	Psychopathic Hospital 4098.	General paralysis.	37	5 months.	1-10-'15.	Salvarsan. Potassium iodide.	12
VII.	J. R.	Psychopathic Hospital 2251.	General paralysis.	35	2 weeks.	2-26-'14.	Salvarsan. Potassium iodide.	9
VIII.	J. A.	Psychopathic Hospital 5083.	General paralysis.	34	8 months.	7-8-'15.	Salvarsan. Potassium iodide.	12
IX.	A. S.	Psychopathic Hospital 5105.	Cerebrospinal syphilis.	28	9 months.	7-10-'15.	Salvarsan. Mercury. Potassium iodide.	13
X.	C. S.	Psychopathic Hospital 4508.	Cerebrospinal syphilis.	40	Unknown.	3-25-'15.	Mercury injections. Potassium iodide.	0

	AFTER TREATMENT.							
			Tests.					
	Mental Condition.	Physical Condition.	W. R.		Globulin.	Albumin.	Cells.	Gold Sol.
			Blood.	Spinal Fluid.				
Number I.	Recovered.	Negative.	−	−	±	N	4	Negative.
" II.	Recovered.	Speech defect gone.	+	+	++++	++++	22	Paretic.
" III.	Markedly improved.	Hemiparesis recovered. Seizures cured. No Romberg or ataxia.	Doubtful.	Doubtful.	++	++	1	Negative.
" IV.	Recovered.	No more convulsions. No tremor.	+	+	++	++		Negative.
" V.	Recovered.	Speech normal.	−	−	0	N		Negative.
" VI.	Recovered.		+	+	+++	++	6	Paretic.
" VII.	Recovered.	Stiff pupils. Knee jerks returned.	Doubtful.	Negative.	+	+	4	Negative.
" VIII.	Memory improved. Capable. Traveling salesman.	No change.	+					
" IX.	Recovered.	Left hemiplegia.	−	Doubtful.	+	+	20	Negative.
" X.	Recovered.		−	−	0	N	4	Negative.

BEFORE TREATMENT.							
		TESTS.					
		W. R.					
Mental Symptoms.	Physical Symptoms.	Blood.	Spinal Fluid.	Globulin.	Albumin.	Cells.	Gold Sol.
Marked. Excited. Confused. Amnesia.	Tremors. Transient hemiplegia.	+	+	++++	++++	75	General paralysis.
Marked. Confused (disoriented). Agitated.	Left pupil rigid, larger than right. Right reacts sluggishly. Speech defect. Reflexes very lively.	+	+	++++	++++	80	General paralysis
Marked. Apathy. Much deterioration.	Pupils react sluggishly. Left hemiparesis. Romberg, ataxia. Minor seizures.	+	+	++++	++++	80	General paralysis
Marked. Apathy. Deterioration.	Pupils react sluggishly. Knee jerks and ankle jerks absent. Tremor, convulsions.	+	+	+++	+++	15	General paralysis
Apathetic. Deteriorated.	Pupils unequal. React sluggishly to light. Knee jerks absent. Speech defect.	+	+	++++	++++	48	General paralysis
Maniacal. Expansive.	Negative.	+	+	++++	++++	130	General paralysis.
Depressed. Agitated. Disoriented.	Stiff pupils. Knee jerks and ankle jerks absent.	+	+	+++	+++	26	
Slight amnesia. Irritability.	Speech defect. Sluggish pupils.	+	+	++++	++++	55	General paralysis.
Semicomatose.	Left hemiplegia.	+	+	++++	++++	176	Cerebrospinal syphilis
Confused. Disoriented at times. Semistuporous. Agitated.	Pupils react sluggishly.	Doubtful.	+	++++	+++++	80	General Paralysis.

he was not so well. Then, suddenly, he had another attack of confusion and excitement He remained in the hospital about six months, until his death in the terminal state of paresis with contractures, emaciation, and bedsores. Very intensive treatment of salvarsan, iodide, intraspinous, and intraventricular injections brought no improvement either in his condition or laboratory findings. The latter were about the same as on admission. This case, while showing improvement for a year, cannot be considered as successful therapeutically.

9. Patient has a residual hemiplegia but is able to walk satisfactorily. Mentally he is entirely normal. An examination of his spinal fluid in March, 1919, showed it entirely negative. He can be considered recovered with defect. It is now more than four years since his hemiplegia and mental symptoms, and he has had no further attacks and is negative to the routine tests for syphilis. As far as one can judge, his syphilis is inactive.

10. Patient lost on leaving hospital.

SUMMARY.

A review four years or more after the dismissal from the hospital of ten cases of neurosyphilis who were reported as aided by antisyphilitic treatment is made. Nine of these patients were committed as insane, the remaining case was diagnosed general paralysis but not necessarily commitable. Eight cases were diagnosed general paralysis, two as cerebrospinal syphilis. It should be added that the diagnosis of cerebrospinal syphilis was changed from general paralysis on one of these two only because he cleared up under antispecific treatment. The mental symptoms were those of paresis. Of the eight cases diagnosed general paralysis, five are now living at home. Three are apparently entirely well, two while not well are able to care for themselves and live a normal life in the community. Two are dead and one is in a hospital. One of the two who died had a fair remission with economic efficiency for eighteen months and had all laboratory reactions negative at one time. The one who was in a hospital had a remission of three years' duration. Two cases were diag-

nosed cerebrospinal syphilis (non paretic), but with marked mental symptoms. One left hospital apparently entirely normal and with negative laboratory signs. He has been lost from view. The other is now serologically negative and mentally normal after four years.

Of eight cases diagnosed general paralysis, three are apparently entirely well after four years; two are well enough to live outside and care for themselves; one had remission of more than three years' duration, now in hospital; two are dead, having had remissions of eighteen months each.

Of two cases diagnosed cerebrospinal syphilis with mental symptoms, one is lost from observation, the other is mentally normal and serologically negative.

This report leads the author to feel that it is possible to help a portion of cases of general paralysis or cerebrospinal syphilis with mental symptoms and that intensive, systematic treatment will change the prognosis of general paralysis. It was not the intention to discuss the percentage of cases of general paralysis that could be helped when this report was first made in 1916, but it did represent a fair percentage of the cases that had had intensive treatment. At this time the desire is merely to bring this report up to date. It does seem encouraging, however, that the results have been so good for such a relatively long period. We conclude that the majority of cases of syphilis of the nervous system, whether the so-called cerebrospinal syphilis, tabes dorsalis, general paralysis or other forms, are entitled to treatment, and if this is done thoroughly, intensively and systematically the results will be gratifying. The form of treatment, mercury, iodide, arsenic intraspinous and intracranial injections, and the amounts will necessarily depend upon the condition of each individual patient.

THE POTENCY OF SOME FRENCH DIGITALIS PREPARATIONS.

BY SAMUEL A. LEVINE, M.D., BOSTON.

[From the Medical Clinic of the Peter Bent Brigham Hospital.]

AT the request of Dr. W. S. Thayer and Dr. A. E. Cohn I was asked to determine the potency and the proper dosage of some of the digitalis preparations that were available for use in the American Expeditionary Forces in France. The work was done in the Central Medical Department Laboratory, Dijon, France, during July, 1918. Believing that some of the results might be of interest to clinicians in general, inasmuch as the French preparations that were tested are used in various medical centers in this country, the experimental data with regard to their potency are reported below.

The cat method was employed in this investigation because of the fact that cats most resemble human beings in their reaction to digitalis. Eggleston[1] made a study of several methods of standardizing digitalis, *i.e.*, using the frog, the rabbit, and the cat, and found that the latter gave the most satisfactory results. The cats were etherized and a cannula was inserted in the saphenous vein. The preparation to be tested was delivered through a burette and generally was made up in a strength so that not more than 10 cc. of the solution would be required to produce the lethal effect. The drug was administered in interrupted doses, sometimes every six minutes and other times every twelve minutes in such strength that death would result in 30 to 60 minutes. In a previous paper[2] it was shown that the M. L. D. (minimal lethal dose) is quite independent of the speed of administration and therefore it was not necessary to give the drug at a constant rate in the various experiments. In fact this was not practicable for the strength of the preparation was not known before the investigation was started, and the rate in certain instances had to be changed from time to time. In all instances of digitalis death the heart stops, while respirations continue for several minutes although they may be irregular and labored.

The first preparation tested was Arnaud's crystallized ouabaine. A similar preparation used in New York has been tested out by Hatcher and Brody[3] and it was found that the M. L. D. (minimal lethal dose) for cats was 0.0001 gram per kilo weight. In a recent work[2] this was found to be true and other observers as well agree with the above results. Four cats were given slow injections of Arnaud's ouabaine. The first cat (see protocols) received 0.00002 gram every six minutes and died after the sixth injection, the M. L. D. was 0.000053 gram per kilo. The second (wt., 2.0 kilo) received the same dose every six minutes and died three minutes after the fifth in-

jection; M. L. D. in this instance was 0.00005 gram per kilo. The third (wt. 3.3 kilo) was given 0.00004 gram every six minutes and death followed one minute after the fifth injection. The M. L. D. was 0.00006 gram per kilo. The last cat (wt. 2.6 kilo) was given 0.00002 gram every six minutes and death followed after 0.00019 gram was given. In this instance the final injection was only 0.00001 gram as it was quite evident that death would ensue with this dose. The M. L. D. was 0.000073 gram. The average M. L. D. of the four experiments was 0,000059 gram. per kilo. (See Table I.) A definite discrepancy exists, therefore, between the potency of Arnaud's ouabaine used in France and the ouabaine used in New York, because the M. L. D. for cats of the latter is 0.0001 gram per kilo. This difference may be due to the fact that the New York preparation is crystallized strophanthin (gratus), and although I do not know the nature of the French preparation, it may be a crystalline substance derived from the ouabaine plant. In any event the French preparation is almost twice as potent as the one used in the United States and therefore should be employed in practical therapy in correspondingly smaller doses. Vaquez and Lutembacher[4] report nearly 2,000 intravenous administrations of Arnaud's ouabaine without any bad results. They used 0.00025 gram, not repeated during the first twenty-four hours.

The other French preparations tested were Nativelle's crystallized digitaline in sterile ampules in oil and in tablets. Four experiments were made, using the former, and it was found that the average M. L. D. was 0.00086 gram per kilo. This indicates that it is about one-eighth as potent as crystalline ouabaine used in New York and about one fourteenth as potent as Arnaud's ouabaine. For details of the individual experiments see protocols. The oil in which the digitaline was dissolved did not play any part in these experiments, although it was injected intravenously, because the following experiments using the same active principle, but suspended in salt solution, gave practically identical results. Three experiments were carried out, using Nativelle's tablets of crystallized digitaline. The average M. L. D. of this preparation was found to be 0.00072 gram per kilo. The tablets were not altogether soluble in salt solution but formed a fine suspension. Typical digitalis deaths were, however, obtained after the injection of amounts practically identical to those required when the digitaline was dissolved in oil.

To compare the above results with a more familiar digitalis preparation, a Parke, Davis Co. tincture of digitalis was tested.* This particular tincture was bottled September, 1916, twenty-two months previous to these experiments. Four cats were used and the average M. L. D. of this tincture was found to be 0.8 cc. per kilo or 0.08 gram of digitalis. This indicates a very active drug, for in testing out a good tincture of digitalis Hatcher[5] found that the M. L. D. for cats was 1.0 cc. or 0.1 gram per kilo of digitalis. A question came up as to whether the alcohol in the tincture played any part in causing the death of the animals. For this reason a control cat was given five times the volume of 47% alcohol (the strength of the tincture) intravenously in the same time without producing any toxic effect on the heart. The possibility of using the tincture of digitalis intravenously in human therapy immediately presents itself. Why this has not been in vogue in the past, I believe must be due to the fear of causing coagulation of the blood elements by using an alcoholic preparation. This point may be decided more definitely, and in addition the margin of safety (*i.e.*, the difference between the M. T. D., minimal toxic dose, and the M. L. D., minimal lethal dose) for such intravenous administrations will also have to be determined.

In comparing the M. L. D. of the various drugs (See Table I) we find that approximately 0.00006 gm. of ouabaine, 0.0008 gram of digitaline and 0.8 cc. tincture of digitalis are equivalents when given intravenously to cats. It is dangerous to translate these figures directly into similar ratios for human dosage. Exactly the same relationship need not exist in the dosage of these drugs when given in ordinary therapy, but the above figures are of some value in guiding us in the use of these drugs. The manufacturers of Nativelle's digitaline advise physicians to give 0.00025 mg. of digitaline four times a day when the drug is to be used in large doses and once a day when small doses are desired. Attention may be called to the fact that the dose of 0.00025 gram is one-fourteenth as potent as the same amount of ouabaine and is equivalent to 0.3 cc. of tincture of digi-

* Digitalin tablets put up by the Fraser tablet Co. of New York, were also tested and the average M. L. D. of three experiments was 0.0049 gram per kilo.

talis. It appears questionable, therefore, whether the doses of digitaline advised by the manufacturers are sufficient, even in view of the fact that digitaline may be absorbed more quickly than the tincture of digitalis when both are given by mouth. Furthermore, French digitaline is said by Clark[6] to be almost pure digitoxin; and the margin of safety in the use of digitoxin is generally thought to be quite small. Perhaps for this reason such small doses are employed.

CONCLUSIONS.

1. The potency of Arnaud's ouabaine and Nativelle's crystallized digitaline was determined using the cat method of Hatcher and was compared with an active tincture of digitalis.

2. The M. L. D. (minimal lethal dose) of Arnaud's ouabaine was found to be 0.000059 gram per kilo.

3. The M. L. D. of Nativelle's crystallized digitaline was 0.00086 gram for the sterile oil ampules and 0.00071 gram for the tablets.

4. From these figures it is suggested that the dose 0.00025 gram of digitaline which the manufacturers advise using appears to be too small for good therapeutic results.

TABLE I.

DRUG	NUMBER OF EXPERIMENTS	M.L.D. IN GRAMS PER KILO. WEIGHT
Arnaud's Ouabaine	4	0.000059
Nativelle's Digitaline ampoules	4	0.00086
Nativelle's Digitaline tablets	3	0.00072
Parke Davis Co. Tincture of Digitalis	4	0.08*

PROTOCOLS.

Arnaud's Ouabaine.

Exp. 1. Cat wt. = 2.3 kg. At 3.06 P.M. given 0.00002 gm. and this dose repeated every 6 min. Died 3.39. Total = 0.00012 gm. M.L.D. = 0.000053 gm. per kilo.

Exp. 2. Cat. wt. = 2.0 kg. At 5.12 P.M. given 0.00002 gm. and this dose repeated every 6 min. Died 5.39. Total = 0.00010 gm. M.L.D. = 0.000050 gm. per kilo.

Exp. 3. Cat wt. = 3.3 kg. At 3.25 P.M. given 0.00004 gm. and this dose repeated every 6 min. Died 3.50. Total = 0.00020 gm. M.L.D. = 0.000060 gm. per kilo.

Exp. 4. Cat wt. = 2.6 kg. At 4.00 P.M. given 0.00002 gm. and this dose repeated every 6 min. (last dose was 0.00001 gm.) Died 4.57. Total = 0.00019 gm. M.L.D. = 0.000073 gm. per kilo.

* 0.8 c.c.

Digitaline, Nativelle's, in ampoules.

Exp. 5. Cat wt. = 2.8 kg. At 2.52 given 0.00035 gms., and this dose repeated every 12 min. Died 4.06. Total = 0.00245 gms. M.L.D. = 0.00088 gms. per kilo.

Exp. 6. Cat wt. = 2.5 kg. At 11.40 given 0.0004 gms., same dose repeated at 11.52 and 12.04, at 12.16 and every 6 min. thereafter 0.0002 gms. given until 12.46. Died 12.47. Total = 0.00024. M.D. = 0.00096 gms. per kilo.

Exp. 7. Cat wt. = 0.7 kg. At 3.15 given 0.0003 gms., at 3.33 and 3.45 given 0.00015 gms. Died 4.03. Total = 0.0006 gms. M.L.D. = 0.00086 gms. per kilo.

Exp. 8. Cat wt. = 0.7 kg. At 11.06 given 0.00009 gms., same dose at 11.18, then at 11.30, 11.42, 11.54, 12.00, 12.06 and 12.12 given 0.00006 gms. Died 12.20. Total = 0.00054. M.L.D. = 0.00074 gms. per kilo.

Digitaline, Nativelle's, in tablets.

Exp. 9. Cat wt. = 1.3 kg. At 11.50 given 0.00025 gm., same dose repeated at 11.56 and 12.02, then given 0.000125 gm. at 12.14. Died at 12.19. Total = 0.000875 gms. M.L.D. = 0.00067 gms. per kilo.

Exp. 10. Cat wt. = 1.3 kg. Given 0.00025 gms. at 4.20 and 4.26, then given 0.000125 every 12 min. Died 5.25. Total = 0.0010. M.L.D. = 0.00077 gms. per kilo.

Exp. 11. Cat wt. = 2.1 kg. Given 0.00025 gms. at 3.36, 3.42, 3.48 and 4.00, then given 0.000125 every 12 min. Died 5.53. Total = 0.0015. M.L.D. = 0.00071 gms. per kilo.

Tincture of Digitalis (Parke, Davis & Co.)

Exp. 12. Cat wt. = 0.95 kg. At 2.56 P.M. 0.5 c.c given, at 3.08, 0.3 c.c. given. Died 3.15. Total = 0.8 c.c. M.L.D. = 0.84 c.c. of tincture per kilo (equal to 0.084 gms. digitalis).

Exp. 13. Cat wt. = 1.4 kg. At 10.36 P.M. 0.3 c.c. given, same dose repeated at 10.48 and 11.00. Died at 11.07. Total = 0.9 c.c. M.L.D. = 0.64 c.c. per kilo. (equal to 0.064 gm. digitalis).

Exp. 14. Cat wt. = 0.95 kg. At 2.34 P.M. given 0.2 c.c., same dose repeated every 12 min. Died at 3.12. Total = 0.8 c.c. M.L.D. = 0.84 c.c. per kilo. (0084 gms. digitalis).

Exp. 15. Cat wt. = 0.80 kg. At 11.00 given 0.2 c.c., at 11.12 0.2 c.c., at 11.24 0.2 c.c., 11.40, 0.1 c.c. Died at 11.45. Total = 0.7 c.c. M.L.D. = 0.88 c.c. per kilo. (0.088 gms. digitalis).

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HYSTERIA.

BY DAVID NATHAN, M.D., NORRISTOWN, PA.,
Captain, C.A.M.C.

THE war has brought vividly to the notice of many of the profesion the prevalence of this disease not only affecting the so-called hysterical women but men who have passed as im-

mune, and whose cure was as rapid and surprising to themselves as it was miraculous to the laity.

Babinski has defined hysteria as a pathological condition shown by disorders which may be exactly reproduced by suggestion in certain individuals or can be made to vanish by persuasion. What seems to me to be an apt definition is that of Hurst, *viz.*, "Hysteria is a condition in which symptoms are present which have been produced by suggestion and are curable by psychotherapy." These definitions at least cover the most important points which have been agreed upon by neurologists. The hysteria of the past with its various stigmata, is like the neurasthenia of Beard, of historical value only, this latter representing a condition of fatigue or exhaustion from overwork, and here some form of Weir Mitchell treatment for a short time is about the only use this latter treatment has for the honest neurologist of the present. There are no constant physical or mental stigmata. Stigmata are never present unless produced by suggestion (Examination, etc.), Babinski. No patient with hysterical anaesthesia ever complained of anaesthesia. The perimeter will produce any spiral you look for. The mental symptom here involved is that of suggestibility. Anybody may be a subject of suggestibility—some are abnormally suggestible. Every symptom has a physical basis at first, later on its perpetuation is hysterical, *e.g.*, shell shock. The non-recognition or cure of such symptoms suggests perpetuation (hysteria). If a month elapses after gassing and the patient is not cured, for rarely is aphonia due to gross organic lesion of the vocal cords produced by gassing, hysterical perpetuation is suggested. Blepharospasm, vomiting, deafness, etc., are produced by auto- and hetero-suggestion. One sees orthopedic cases with rigid-hand after wounds — condition here is partly reflex and partly voluntary. In many of these cases massage and electric treatment produce perpetuation by hetero-suggestion. The idea of incapacity being rubbed into the hand. The lesion gets well but the symptom remains. In some cases one finds an hysterical exaggeration of beginning organic disease. There are often the physical signs of organic central nervous disease evidenced before symptoms are produced. (One must distinguish emotional states from hysteria, *e.g.*, hebetude, trembling, tachycardia, micturition, etc.)

The rôle played by emotion in the productions of hysteria can be neglected. At the front one rarely saw hysteria. At the base hospitals and among those who had been from hospital to hospital was it most frequent. In war cases as opposed to civil ones, there was an absence of deeply underlying mental processes—mental confusion, violent emotion, etc., following the commotion and moral shocks of war but prepare the ground for auto- and hetero-suggestion, manifested by the later appearance of hysterical phenomena.

At the Seale Hayne Hospital, England, where I was for a time, on command, the cases were sent from the various general, special, and convalescent hospitals, within the various commands in England. Many of the cases were brought in on stretchers and most had been manipulated, massaged, electrified, bathed in minerals and given up as permanently disabled. They consisted of hysterical contractures and paralysis following wounds and injuries besides many cases of hysterical aphonia. The arms and legs were the parts most often involved—injury due to gun shot wounds with or without fracture, amputation, tetanus, contusions, dislocations, etc.

In a series of one hundred consecutive cases which Lt.-Col. A. F. Hurst, the officer commanding, tabulated, not including the cases of aphonia, there had been an average period of treatment of eleven months before admission. Of the series, ninety-six were cured at one sitting. Average time required fifty-four minutes.

One was cured in four days.
One was cured in four weeks.
Two were cured in eight weeks.

Of sixty-seven consecutive cases of aphonia following gassing, emotion, laryngitis, bronchitis, wounds of neck and chest, and debility, with an average period of treatment before admission of 205 days, maximum 35 months, minimum two weeks.

37 were cured within 5 minutes;
21 were cured within ½ hour;
9 required more than half an hour.

We never looked for stigmata and by looking produce them, but assured the patient of the nature of his trouble, explained it and promised him a cure. We rarely had recourse to hypnotism. Confidence by the physician in himself which must square with his knowledge

of the condition along with the faith of the patient in the physician, favorable entourage (patient seeing and hearing of cures in other patients) hasten a cure. But it is possible to cure most hysterics whether they have faith in you or not and in spite of their voluntary effort in some cases, not to be cured. In some cases after removal of the hysterical element there was the original basis in the form of organic nervous disease, *e.g.*, disseminated sclerosis.

Hysteria will come into its own when the physician recognizes its capability of imitating all organic nervous disorders, when he realizes the ease with which he can cure the condition if wholly hysterical, or can remove the hysterical symptoms which are added to those due to organic nervous disease and which may comprise 50% of total symptoms.

ACUTE NEPHRITIS BY ABSORPTION OF HOUSEHOLD DISINFECTANTS.*

BY HENRY A. JONES, M.D., HOWARD, R. I.,

Superintendent, State Infirmary, Howard, R. I.

CASE A. B. Age 28, white, single; occupation, mill operative. Strong and healthy up to date of injury November, 1918, when he accidentally shot himself in the right foot with a 22-calibre rifle. His physician prescribed a wet dressing of creolin. The patient was instructed to use it often to keep the wound clean. After the wound was healed, the patient became a convert to the efficacy of this preparation, using it daily in his bath, also in the mill for the frequent washing of his hands during his work, from above date to Aug. 23, 1919, when he received a sting, from a wasp, near the ankle. This small area became infected, and by abrasion of the shoe the infection increased, deep suppuration occurred, and a large sloughing ulcer resulted. This condition was aggravated by a concentrated solution of creolin being applied by some one of the family, who, becoming alarmed at this condition, called a physician, who prescribed lysol. The patient was instructed to soak the foot twice a day in a solution made by adding one tablespoonful to enough water to cover the ulcer well. This soaking of the foot usually lasted from 15 to 20 minutes, and the ulcer was kept wet with this solution. A relative of the patient supplemented this treatment by soaking a cloth in the preparation, without diluting, and applying it around the ulcer. After the foot was taken out of the solution where it had been soaked, it was usually very white and somewhat numb, a condition which was due to the action of the preparation on the nerve terminals of the skin. This condition would gradually disappear after a good brisk rubbing. During this treatment of the ulcer, and within a comparatively short period of time, the patient began to present symptoms of nephritis. The feet became swollen, the eyelids puffed, the urine became "bloody," lassitude with loss of appetite, then finally physical prostration occurred. A sample of "bloody" urine showed a port wine color, medicated odor, no albumen by nitric acid or boiling test, a few casts, no sugar, a faintly acid reaction with a specific gravity of 1018.

After examination of the history of the case, the patient being too prostrated to travel for consultation, a diagnosis was made of acute nephritis caused by absorption of the products used for wet dressings; we advised their discontinuance. In the middle of September the condition of the patient became worse. He was sent to a general hospital where a diagnosis of "acute nephritis" was made.

On October 2, 1919, the physician on the case presented for our examination a sample of the patient's urine. The specific gravity was 1010, acid reaction, pale lemonade in color with a faint pink tinge as seen through reflected light; it also contained a very few casts and a faintly perceptible ring of albumen. The patient has been taken home from the hospital, is improving rapidly under a bland diet and urinary antiseptics, and abstinence from disinfectants as a dressing for the ulceration.

COMMENT.

We believe this case to be of great interest inasmuch as it shows the result of too energetic treatment of broken tissues by strong disinfectant wet dressings. Solutions containing coal tar products should be made by being first thoroughly dissolved in cold water, then adding warm water enough to bring to the desired dilution, which should be "a very pale milk color." If this method is not followed,

* After this article had been sent to the publishers, an article bearing upon the destructive action of Lysol on the tissues, by Horace K. Sowles, M.D., appeared in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxxi, No. 17, p. 510.

but the solution is first mixed with hot water, there is a tendency for the oily constituents to separate and float upon the surface as oily bubbles and scum, which causes an irritation at the point of contact with the skin. Such cases are frequently found in the hands of inexperienced persons who have allowed a patient to sit too long in an improperly mixed disinfectant bath, for the relief of eczema, chronic ulcers of the legs, scabies, and vagabonds' disease; indeed, some of the latter cases exhibiting a condition similar to surgical shock, when immersed too long in a strong solution of these very useful, but much abused household disinfectants.

The case also shows the folly of prescribing, and leaving such solutions in the hands of the patients or relatives, who are altogether too apt to increase rather than diminish the dose prescribed. They should be firmly impressed with the possibilities of injury, both locally and systemically, whenever they depart from written directions.

While writing this article numerous incidents have been brought to our attention by physicians, of grave injuries resulting from the long continued use of commonly used disinfectants, such as carbolic acid, iodoform, and iodine, the dermatitis resulting from these being very severe and the absorption noted by their appearance in the urine. Our attention has been called to incidents occurring during the days of "Listerism," when the carbolic acid spray was freely used during operations, one noted local surgeon being afflicted with strangury and "bloody" urine the same afternoon after operating under the fumes of this drug and dying of nephritis later on. He always maintained his condition was due to the effects of the carbolic fumes at this particular operation, during which, in conjunction with the spray, a hot strong solution was used to sterilize the instruments, the fumes from this being perceptibly noticed, and affected others standing close by the operator.

The condition of nephritis in the subject of this article may have been hastened by the absorption by the lungs of the fumes created by dissolving the disinfectant in the pail of hot water used to soak the foot.

The case is interesting also to show that we should never lose sight of a very important fact, that baffling physical conditions are apt to arise in a case due to absorption of any drug frequently prescribed, too long continued and apparently overlooked by the attending physician.

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Book Reviews.

Psychiatric-Neurologic Examination Methods. By Dr. August Wimmer. Translated by Andrew W. Hoisholt, M.D. St. Louis: C. V. Mosby Company. 1919.

In making psychiatric-neurologic examinations, this volume will be found to be a useful and practical guide both by students and by physicians. The author has presented in a concise, outline form the fundamental features, including general symptomatology, to be taken into consideration in making a thorough examination of the insane. The condition of the patient before his present illness may be determined by following the anamnesis schedule herein suggested, involving questions of heredity, the patient's general bodily development during childhood and later, his mental habits and general psychic development. The author considers it wise to determine the psychic state of the patient before undertaking the somatic condition, and suggests methods by which this may be accomplished: observation of the patient's mood, and his behavior reaction as shown in mimicry, gesture, and speech are helpful external elements in judging the patient's condition; a questionnaire is suggested for discovering the patient's fundamental psychic disturbances; the course of ideas, the degree of attention and apprehension, the relation of the individual to his environment, his sense-deception, his delusions and obsessions, and the quality of his memory may all be ascertained by various questions and tests which are outlined in this book. The author suggests methods for determining the patient's somatic state, and describes the importance of the following factors: external habitus, internal organs, organs of sense, speech, motor disturbances, muscular movements and reflexes, examination of the cerebrospinal fluid, and serologic examination. This volume is illustrated, and should prove to be helpful to physicians and especially to the student in psychiatry in connection with his work in mental clinics.

THE BOSTON
Medical and Surgical Journal
Established in 1812

An independently owned Journal of Medicine and Surgery published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, JANUARY 15, 1920

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BOSTON MEDICAL AND SURGICAL JOURNAL
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THE MEDICAL FACULTY OF THE UNIVERSITY OF PARIS.

IN consideration of the fact that the Medical Faculty of Paris has been reorganized and has resumed its courses of instruction and reopened its clinics and laboratories, it may be of interest to members of the profession in this country to know of the resources at the command of this institution. We have received recently a pamphlet, *La Faculté de Médecine de l'Université de Paris,* which describes the present scope and policy of this school of medicine.

The Faculty of Medicine has been developing over a long period of time; the first step, in fact, was taken in the reign of Charlemagne, although there was no definite organization until 1270. The Faculty was then at first made a part of the University and was under the control of ecclesiastical authority. Professors and students were subject to the sway of the churchmen and were often persuaded to abandon medicine for a more sacred calling. Later, a separation was made, but the influence of the clergy persisted, and it was not until 1452 that physicians were free enough from religious influence to be permitted even to marry. At first established in *la rue du Fouarre,* the Medical Faculty moved, after some time, to more comfortable quarters in *la rue de la Bucherie* in 1456. In the second half of the 16th century, a rival institution, *le Collège de Saint-Come,* attained a position of considerable importance. In the eighteenth century, the organization of *l'Académie de Chirurgie* increased greatly the importance of surgery in France. In 1792, the legislative assembly abolished these corporations and for two years the Faculty of Medicine ceased to exist. In 1794 the *École de Santé* was organized and installed in the buildings which had been used by the *Collège de Chirurgie,* the same which are used by the Faculty of Medicine at the present time. There was organized a department which aimed to be both theoretical and practical, a library and museum were created, clinical services were established in the hospitals, and the modern era was thus begun in France. In 1808 this organization was called the *Faculté de Médecine.* It has developed to such an extent since that time that it is now necessary to add an annex in order to make it possible to extend its activities. Plans are being made to construct two new buildings, one for the department of medical biology, and the other for the department of hygiene.

Clinical instruction has been organized in 35 of the hospitals and almshouses in Paris. With one exception, these belong to the Department of Public Aid, which organizes open meetings for all students of medicine, whatever their nationality; this liberality makes it possible for a large number of foreigners to serve as internes in Paris hospitals. The course requires that for five consecutive years students pass the morning and part of the afternoon in hospital service, being permitted not only to ask questions but also to take part in the examination of the patients. Consultations are held every morning for the externes under the direction of a hospital physician. Under the guidance of a laboratory chief, autopsies are performed by the students of the hospital service. This custom, contrary to that practised in most countries, has the advantage of en-

abling the student to follow the complete course of the disease and to verify the diagnosis made of the case.

There are twenty clinical services of the Faculty, including medical clinics, therapeutic, general surgical, obstetric, and special medical and surgical clinics. There is also a department of free instruction, to which all physicians, surgeons, and specialists are invited; this arrangement is of recent origin, and has the advantage of permitting thorough coöperation between the Faculty and the hospitals and of grouping the schedules and programs under a single administration.

The theoretical courses, often illustrated by practical demonstrations, are held in various amphitheatres and laboratories of the Faculty by professors and their associates. Students are not obliged to be present in these theoretical courses, but they are required to follow the practical work, admission to which is free and is limited to undergraduates. For advanced students, there have been organized courses to enable French and foreign physicians to follow the course of modern progress in medical science. These courses have been suspended during the war, but were reorganized to begin again in November, 1919. In many of the services, lectures are given in foreign languages. Laboratories of research, with the advice of the professors and their assistants, are open to undergraduates approved by the professors upon the payment of a small fee.

The Faculty of Medicine admit each year between four and five hundred new students, many of whom are from other countries. At the end of the course of five years, students are required to submit a thesis and to pass three examinations, one in clinical and therapeutic surgery, a second in clinical and therapeutic obstetrics, and a third in clinical and therapeutic medicine.

Foreigners who wish to receive the state diploma of medicine must meet all the requirements of the French students. Those who cannot fulfill all those requirements may be eligible for the diploma of *Docteur en Médecine de l'Université de Paris.* A complete list of the courses of study and examinations is included in the pamphlet *La Faculté de Médecine de l'Université de Paris,* published by Masson et Cie, 120 Boulevard Saint-Germain, Paris, VI^e^.

PERSONAL SAFETY OF PHYSICIANS.

THE attack made recently upon a physician in Lynn has called forth a protest against the present situation, in which no measures are taken to protect the personal safety of physicians. It is indeed true that members of the medical profession, called upon to render service at all times of night, are particularly exposed to attack from assailants. If the number of physicians who have suffered at the hands of nightly marauders were to be ascertained, it is likely that the list might be considerable. In our cities and in many towns, physicians usually leave their cars in public garages during the winter because they are heated; not infrequently these garages are located in dark and secluded places, particularly favorable to the schemes of evil doers. And yet, physicians are not permitted by law to carry firearms as a means of defense. Though the protectors of health and lives of others, we must hazard our own personal safety and continue to submit ourselves, unarmed, as prey to whatever criminals may choose to take advantage of the midnight call.

A PHYSICIAN'S RESPONSIBILITY.

Greatly to the detriment of medical progress and the well-being of humanity, the point to which a physician is responsible to his patient is often overreached. We refer to the mischievous practice of bringing suit against physicians and surgeons in the hope of financial gain. There are errors and accidents beyond the control of the best of surgeons, and unless sufficient legislation is enacted for their protection, the fact that patients are taking advantage of these opportunities with increasing avidity cannot fail to result in reluctance on the part of physicians and surgeons to expose themselves to the risk incumbent upon undertaking much work which is necessary to prevent suffering and death. No one would wish to deny that physicians and surgeons properly may be held for errors or blunders for which they personally are responsible; but a case which has come to the writer's attention recently illustrates the unjustness and annoyance to which a doctor may be exposed. A dog, jealously suspicious of a new-born baby, sprang at it fiercely. At considerable personal risk to him-

self, the physician jumped to the rescue of the child and fought with his hands the strong, maddened animal. After a considerable struggle he finally succeeded in mortally injuring the dog and saving the baby's life, although not without considerable mutilation to himself. He was sued by the family for the death of the dog.

Similar incidents, and others of a more strictly professional nature, constantly confront the physician and surgeon. Should we not have adequate legal protection against attacks of this sort? There is pending at present legislation to relieve the doctor of responsibilities which justly do not belong to him and over which he has no control. It is our earnest belief that such legislation not only will protect members of the medical profession, but also it will make them more free to undertake the service which the interest and welfare of humanity demands that they should undertake without hesitation.

PRACTICAL AID TO THE HEALTH CAMPAIGN.

From time to time there are introduced into Congress measures having for their object the improvement of the public health. Most of these measures call for vast appropriations which quite naturally the national legislators are loath to enact. There are, however, many ways in which the national government can assist the local health officials without expenditure of any considerable sum of money.

The basis of any effective public health campaign is knowledge of the health of the community in question. Exact knowledge of the local conditions is difficult to obtain and the health official must content himself with tables of births and deaths supplemented by reports of communicable diseases. To a large extent the diagnosis of these diseases is dependent upon laboratory examinations which in most cases must be made at the central state laboratory. The national government could easily provide for the expense of sending the specimens to the laboratory and the return of the report and the laboratory supplies. To be sure this could not be done for nothing; but by extending the franking privilege to the central state laboratory in each state, the state would be saved considerable and the national government would be in a position to make sure that the laboratories are kept up to the standard.

MEDICAL NOTES.

RED CROSS PREPAREDNESS FOR DISASTER.—*The Red Cross Bulletin* for December 22 announces the plans of the newly created Red Cross Bureau of Disaster Preparedness and Organization, which has undertaken to mobilize the resources of community, state, and nation for immediate relief in the event of disasters. For the use of division offices there has been issued a "Disaster Relief Guide Book," which is helpful in planning disaster surveys and in mastering methods of relief developed as the result of Red Cross experience in past disasters. Up to the present it has been customary to wait until a disaster occurs before undertaking to provide relief; but the record of an average of one disaster a month for every month of fourteen years shows how important it is to be prepared to meet such frequent emergencies It is hoped that through surveys made by the Red Cross the fifteen thousand communities in which it is active will know thoroughly the resources at their command and will provide means for putting them into immediate use whenever they are needed.

IMPORTANT FACTS ABOUT DIPHTHERIA.—The United States Public Health Service has issued under the title, "Keep Well Series," a number of popular health booklets which contain considerable valuable information. One of these, Number 4, discusses diphtheria and describes means of identifying the disease, methods of treatment, including antitoxin, the method of testing for it by the Schick reaction, and means of maintaining personal and bedside hygiene. The fact is emphasized that diphtheria need seldom become a serious disease if it is treated properly and in time. Safety lies in early administration of antitoxin and this has been proved by mortality figures. Formerly the regular rate of death of children stricken with the disease was one out of every three, while today, with the use of antitoxin, ninety-eight out of every hundred children will recover. Delay is the source of the greatest danger.

PUBLIC HEALTH ACTIVITIES.—Among the activities of the Public Health Service, the inspection of animals and meat is one of the most important means of preventing disease. More than seventy million animals and their products, representing about seventy per cent. of the total meat production in the United States, have been inspected by the Federal service under the direction of the Bureau of Animal Industry, This work included the inspection of the animals before and at the time of slaughter; the re-inspection of products throughout all the various processes of preparing, curing, canning, and packing; the enforcement of requirements to insure sanitary conditions, equipment, and methods; the exclusion of harmful preservatives; the supervision of labelling so as to prevent false representations; and the condemnation and destruction for food purposes of all animals or products found to be unwholesome. In addition, approximately one hundred and eighty-one million pounds of foreign meat have been inspected for entry into the United States. The cost of inspection is less than six cents for each animal slaughtered.

ROCKEFELLER GIFT OF $100,000,000.—It has been announced that Mr. John D. Rockefeller has given recently the sum of $100,000,000 for the promotion of education and science. This gift is the largest philanthropic single gift recorded in the history of the world. At a meeting of the General Education Board to be held on February 26, plans for the distribution of this gift will be considered.

The sum of $50,000,000 will be disbursed, both principal and interest, in coöperating with institutions of higher learning in increasing the salaries of their teaching staff. In connection with this gift, Mr. Rockefeller is reported to have made the following statement:

"The attention of the American public has recently been drawn to the urgent and immediate necessity of providing more adequate salaries to members of the teaching profession. It is of the highest importance that those entrusted with the education of youth and the increase of knowledge should not be led to abandon their calling by reason of financial pressure or to cling to it amid discouragements due to financial limitations. It is of equal importance to our future welfare and progress that able and aspiring young men and women should not for similar reasons be deterred from devoting their lives to teaching.

"While this gift is made for the general corporate purposes of the board, I should cordially indorse a decision to use the principal as well as the income as promptly and largely as may seem wise for the purpose of coöperating with the higher institutions of learning in raising sums specifically devoted to the increase of teachers' salaries."

The other $50,000,000 will be used by the Rockefeller Foundation for promoting the well-being of mankind throughout the world. Of this sum, $5,000,000 is to be expended for the development and improvement of the leading medical schools of Canada, which are to be required to raise additional sums from other sources. The remainder will be used in extending public health activities and medical education throughout the world.

TUBERCULOSIS IN ITALY.—The latest official statistics received from Italy show that the total mortality from tuberculosis in that country has decreased from 1887 to 1914, but in varying degrees in different regions. In Sardinia, however, the rate has increased. The report states that the diminution was about one-third from all tuberculous diseases and one-fifth for pulmonary tuberculosis.

INFLUENZA EPIDEMIC IN JAPAN.—Reports received in Tokio from different parts of Japan state that there is an outbreak of influenza in that country. It is reported that the Government has taken measures to check the spread of the disease.

LEPER HOUSE FOR BRAZIL.—There has been begun near Santo Angelo a model leper house, equipped with all necessary provisions for the isolation and treatment of patients in Brazil.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE.—The sum of $150,000 has been granted by the General Education Board to the Washington University School of Medicine, St. Louis, on condition that an equal amount is raised by subscription. The total sum is to be applied to the endowment of the department of pharmacology.

ADMISSION OF WOMEN TO MEDICAL SCHOOL.—There are enrolled in the Medical College of New York University, for the first time in its history, the names of twenty women who are permitted to have equal privileges with the men, attending the same classes, working in the same laboratories and clinics and receiving their degrees after they have completed the same curriculum of study. Heretofore, men students only have been admitted to attend the clinic at the Bellevue Hospital and assist the attending physicians with the lesser duties of the dispensaries; henceforth, women students will also be admitted to the same privileges.

PRICE CHANGES IN DRUGS AND CHEMICALS.—The following announcement was made by the Drug and Chemical Markets for the week of Dec. 24:

Manufacturers of American colors announce production sold far ahead into 1920. Some dyes are becoming scarce, owing to difficulty in obtaining certain intermediates. Among the coal-tar crudes benzol and toluol are practically off the market.

Soya bean oil has been advanced in price by the activities of speculators. Linseed oil is in good demand and prices are firm, owing to the short crop of flaxseed.

Prices of essential oils are firm, and business continues active. The reduction of stocks, in conjunction with the numerous orders received, tends to advance prices. Manufacturers have named higher figures on several products, but there are few revisions of note.

Iodine prices have been reduced by manufacturers. Sulphur cocaine, and glycerine are higher. There is an extreme scarcity of borax, oxalic acid, wood alcohol, formaldehyde and thymol. Trading is active, and the approach of the holidays does not lessen inquiries. Transactions are limited to small lots, because of the limited stocks.

Sulphuric acid—66 degree—is higher. Bichromate of soda and bichromate of potash are lower. Caustic soda prices are very firm. All potash salts are scarce.

RADIUM ORE IN ONTARIO.—Pitchblende, the ore of radium, has been discovered in Butt, District of Nipissing, Ontario. The uranium content has been found to be 6.6 per cent. equal to 74.98 per cent. of uranium oxide. This is the second occurrence of radium-bearing mineral reported to the Bureau of Mines since the Ontario Legislature offered a reward of $25,000 for the discovery of radium in Ontario in commercial quantity. The other discovery, euxenite, which also carries radium, was made several years ago in the township of South Sherbrooke in Lanark. As it has not been shown that radium exists in commercial quantities, the reward has not been granted.

GIFT TO THE FAIRVIEW HOSPITAL.—By the terms of the will of the late William Hall Walker, the sum of twenty-five thousand dollars has been bequeathed to the Fairview Hospital at Great Barrington, New York.

WESTERN RESERVE UNIVERSITY MEDICAL SCHOOL.—Plans are being made to establish a post-graduate school in medicine in Western Reserve University, Cleveland, Ohio, in order to offer opportunities for further study to practising physicians who desire to acquaint themselves with current medical and surgical investigation. The course is being arranged by a committee of three members of the faculty of the school of medicine, and will begin next June. There will be short, intensive courses without degrees, and also a longer course which will lead to the degree of A.M. in medicine. The latter course is designed especially for regular students who may wish to continue their study before taking up their practice.

A HEALTH SURVEY OF OKLAHOMA CITY.—A survey of the health situation in Oklahoma City, undertaken on the initiative of the Oklahoma Tuberculosis Association about a year ago, has just been completed. The report reveals sanitary conditions which call for remedy in a number of respects. In regard to the water supply, the fact that the general nature of the natural streams is hard and the salt marshes through which they run give them a brackish taste, has resulted in the extensive consumption of well water sold in bottles. No physical examination of the men who handle the supplies is made regularly, the processes of sterilization of the bottles and the corks is inadequate, and there is no ordinance which brings these waters under the inspection of the health department.

The survey of the food conditions of Oklahoma City discloses facts which probably hold true in a great many cities. The scoring of the

dairies showed that one-third are below 60. Pasteurization is only partial and there are no regulations concerning the examination of food handlers. In restaurants particularly the conditions were found to be unsanitary. Soap, running water, and individual towels are provided in only three out of seventy-four establishments inspected; only four had provision for the storage of clothing outside the room where food is prepared, and only six had adequate storage for street clothing. More than half the refrigerators were found to be clean; two-thirds of the establishments used scalding water for dishes; only eight had proper garbage receptacles, and only one establishment required medical cards of its employees.

The mortality rate of Oklahoma City in 1918 was 12.7 per thousand, but this figure is higher than usual because of the influenza epidemic. The birth rate is very low. Typhoid fever is reported as quite as high as in registration cities; pneumonia is in general at only half the normal rate; malaria is four to five times as prevalent; diphtheria is a fraction only of the usual number, and scarlet fever and measles are hardly perceptible.

STANDARDIZATION OF TUBERCULOSIS SANATORIA.—A report of a committee of the Mississippi Valley Conference at Des Moines outlines the standard requirements of tuberculosis sanatoria and makes a number of important recommendations. The committee believes that the controlling board of the institution should be composed of three or five members, at least one of whom should be a licensed physician, who should not be connected with the county board or other agencies. The buildings should be away from the congestion of the city, yet accessible by trolley and convenient to city water, sewer system, gas, electric light, and telephone, and in a place free from cemeteries and certain industrial occupations. The committee recommends that bed patients be housed in two-story, fire-proof buildings, and that ambulants be put in units of sixteen in one-story buildings. Canvas construction is not considered favorably. One-fifth of the capacity of the institution should be arranged especially for the use of those who are acutely ill, while thirty per cent. of the space should be available for other cases not so far advanced but at the same time not ambulatory. It should be possible to provide separately for the open and closed cases among children. It is advised that every institution, irrespective of size, have rooms for the physical examination of patients, especially for nose and throat conditions, a laboratory, and if possible, an x-ray equipment, especially if there is a capacity of one hundred or more beds. Tuberculous patients should be provided with recreation and social rooms, and facilities for outdoor amusements.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Dec. 27, 1919, the number of deaths reported was 221 against 441 last year, with a rate of 14.47 against 29.32 last year.

The number of cases of principal reportable diseases were: Diphtheria, 72; scarlet fever, 66; measles, 212; whooping cough, 33; tuberculosis, 30.

Included in the above were the following cases of non-residents: Diphtheria, 11; scarlet fever, 10; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 3; scarlet fever, 2; measles, 1; whooping cough, 3; tuberculosis, 19.

Included in the above were the following non-residents: Diphtheria, 1; scarlet fever, 1.

Influenza cases, 4.

MEDICAL COMMISSION FOR DR. R. B. SCALES.—Dr. Robert B. Scales of Dorchester, Massachusetts, has received a commission as lieutenant-colonel in the medical section of the Officers' Reserve Corps of the United States Army. Dr. Scales served during the war as chief of the medical service in Base Hospital 106. Nearly fifty thousand sick and wounded American soldiers were cared for in the hospital center of which Base Hospital 106 was a part.

HONOR FOR TWO BOSTON PHYSICIANS.—In recognition of their distinguished services during the war, two Boston surgeons, Dr. Joel E. Goldthwait and Dr. Frederic A. Washburn, were honored by the Prince of Wales during his visit to this country by being made Companions of the Order of St. Michael and St. George.

PROVISIONAL REAPPOINTMENT OF DR. PATRICK H. MULLOWNEY.—It has been announced that Dr. Patrick H. Mullowney has been reinstated

provisionally as Deputy Health Commissioner, in charge of the food inspection division. Dr. Mullowney was removed from office on January 31, 1919, after he had left this city without leave to engage in war activities in connection with federal food inspection for the army. On September 9, 1918, he requested a leave of absence, which was refused by Health Commissioner Woodward because of readjustments which were being contemplated for the health department at that time. Dr. Mullowney's reappointment is only provisional and he must take examinations with the other candidates for the permanent appointment. If some other man on the civil service list proves himself to be better qualified for the position, he will be given the benefit of the probationary appointment.

TUBERCULOSIS IN BOSTON.—The Boston Association for the Relief and Control of Tuberculosis has issued statistics to emphasize the seriousness of the tuberculosis problem in Boston. Last year there were in Boston 1,367 deaths from this preventable disease. Careful investigation shows that for each death from tuberculosis there are twenty persons ill with the disease, nine of whom are in the advanced or contagious stage. These figures indicate that in Boston we have over 27,000 persons with tuberculosis, over 12,000 of whom are in the advanced or contagious stage.

REWARD FOR CAPTURE OF LYNN BANDITS.—At a meeting of the physicians of Lynn, it was voted to offer a reward of one thousand dollars for the arrest and conviction of the motor bandits who assaulted Dr. Bennett of that city on Christmas Eve.

WELLESLEY'S PUBLIC HEALTH ORGANIZATION.—Six or seven years ago there was instituted in Wellesley the novel plan of the coöperation of a number of towns in the establishment of a communal board of health. Three or four of the nearby towns joined with Wellesley in securing the full-time health officer of skill and experience and in establishing proper laboratories and health systems. It has been found that in this way communicable diseases, food inspection and other functions of a health department are better managed by trained specialists who are paid salaries which call for their whole time than by the local part-time men who were employed formerly. The principle initiated in Wellesley has proved so satisfactory that there are being organized throughout the country other coöperative systems, including, in addition to community public health organizations, district hospitals and sanatoria and systems of dispensary work.

NEW ENGLAND NOTES.

NEW ENGLAND WAR RELIEF FUNDS.—The principal New England war relief funds have reached the following amounts:

French Orphanage Fund	$533,575.25
Italian Fund	318,034.25

PUBLIC HEALTH NURSES IN CONNECTICUT.—Connecticut is the seventh state in the Union in the actual number of nurses employed, and aspires to a still higher station. The state has one hundred and seventy-five nurses, and it is believed that it needs three hundred and fifty. New Haven County has seventy-nine, Hartford County has thirty-five, and Fairfield County has twenty-four. There are thirty-seven for the rest of the State. The average for the State is about one nurse for every eighty-five hundred of population.

Miscellany.

HOW GERMANY CARES FOR HER DISABLED.

IT is natural that Germany, with her admitted power of organization, should have exhibited a concentration of effort in making provision for her wounded and disabled in the war. On the other hand, just as we were unprepared for the war, when war came, so no organized arrangements existed for dealing with these emergencies, at least upon a scale which could have been anticipated. Much has been accomplished since in this regard, however, and it speaks well for the energy and spirit of the nation that our wounded and disabled men are now in a fair way to profiting from the success achieved in our efforts to meet their demands. Hospitals had to be organized, medical services arranged, systems of transport created, and a mass of detail crushed into an effective method for realizing essential results. All these were matters of extreme

urgency, demanding immediate and intensive organization, delay in the execution of which would have led to deplorable chaos.

"As soon as, however, the pressure of this urgency began to diminish, then time and opportunity became available for turning attention to the great aftermath of the war, the question of making provision for our soldiers permanently disabled by their wounds, and herein has Germany displayed her organising capacity in full measure. In an interesting and instructive volume Major John R. McDill has described in detail the systematic methods adopted for the relief of the German wounded, under State control.*

The first step was a coöperative basis of working between the military and civic authorities. This ensured that directly a permanently disabled man entered a hospital his prospects of becoming a useful civilian were impressed upon him. A conspiracy of effort among doctors, nurses, visitors is fully exploited as part of the necessary scheme for encouraging the man's "will-power" to resume an active industrial life. In furtherance of this a special department has been introduced, for vocational guidance, embracing experts, representative of industrial and other occupations, to which the men are recommended to apply for advice. But with the progress of the war adding to the magnitude of the undertaking, an elaborate scheme was formulated: this is now known as "The Welfare Commission for the War Disabled," and it is based upon a union of purpose of the military and civil authorities, in association with all trade and industrial organizations, and the coöperation of the polytechnic and commercial schools. The objects of this commission are carried out by committees in each province, and by subcommittees in local districts. In the manner in which this all-pervading organization is portrayed before us by Major McDill, doubt cannot be felt that in the possibilities of its effectiveness it surpasses our own efforts in this direction. In warfare we have learned lessons from the Germans; in warfare the Germans have learned lessons from us, and now it is open to us to consider whether the details of the elaborate scheme in Germany, by which disabled men can be brought back into a sphere of usefulness for the State, is not worthy of our attention. Germany claims that 95 per cent. of her wounded are able to return to military duty, or are fitted for useful employment in some industrial pursuit. The evidence shows that every effort is being made by our enemies to perfect the means of converting man into a unit of usefulness under the circumstances; therefore, it would be foolishness on our part to ignore the methods of organization and the practical schemes by which Germany attains her object in this regard, wherever it became obvious that benefit could result from her example in this country. The book in question throws many sidelights upon the war as affecting our enemies, while the facts it discloses are authoritative."

* "Lessons from the Enemy: How Germany Cares for Her War Disabled." By John R. McDill, M.D., F.A.C.S., Major, Medical Reserve Corps, U. S. Army. Illustrated. Philadelphia and New York: Lea and Febiger. 1918. Reviewed in the *Medical Press and Circular*.

Correspondence.

SCHOOL NURSES AND BOARDS OF HEALTH.

State Department of Health,
Boston, January 2, 1920.

Mr. Editor:—

I notice that in the issue of the Boston Medical and Surgical Journal for December 18, 1919, there is an editorial on the proposed health education law. I beg to call your attention to the paragraph under "Bill 2, Suggested Draft for School Nurses." Here you quote only part of the law as it would stand if this amendment were passed. The intention of this amendment is merely to make obligatory school nursing service for every city and town. There is no intention of changing the existing law in any other way. For that reason Section 1 should read: "The school committee of every city and town of the Commonwealth shall appoint one or more school physicians and nurses and shall assign one of each to each public school within its city or town, and shall provide them with all proper facilities for the performance of their duties as prescribed in this act; and shall assign one or more physicians to perform the duties of examining the children who apply for health certificates in accordance with this act: provided, however, that in cities where the board of health is already maintaining or shall hereafter maintain substantially such medical inspection as this act requires, the board of health shall appoint and assign the school physician and school nurse.

It will readily be seen that this proposed amendment to the present law does not take away from boards of health any of the rights which they now possess.

Very truly yours,
Merrill Champion,
Director, Division of Hygiene.

SOCIETY NOTICES.

Hampshire District Medical Society.—A special meeting of the Society will be held at Boyden's restaurant, Northampton, on Wednesday, January 14, 1920, at 11.30 A.M.

Dr. Frederick Bryant of Worcester will give a lecture on "Radium and Malignancy, or The Cancer Problem." This will be a lantern lecture, illustrated

by 60 slides. Dr. Bryant will also have a tube of radium and demonstrate its flames. It is hoped that all members will endeavor to hear this discourse and witness the demonstrations.

E. E. THOMAS, M.D, *Secretary*

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY will hold a general meeting in John Ware Hall, Wednesday, Jan. 14, 1920, at 8.15 P.M. "Some Vital Problems in the Diagnosis and Treatment of Cancer" will be discussed by Dr. Francis Carter Wood, Director of Cancer Research for the George Crocker Special Research Fund, and Professor of Pathology of the College of Physicians and Surgeons, Columbia University, New York. The address will be illustrated by the stereopticon.

W. B. ROBBINS,
F. A. PEMBERTON,
G. D. CUTLER,
Committee on Medical and Social Meetings for the Boston Medical Library.

THE EAST BOSTON MEDICAL SOCIETY will hold its annual dinner and election of officers on Thursday, January 15, at 6 P.M., at Young's Hotel, Boston.

J. DANFORTH TAYLOR, M.D., *Secretary.*

THE NEW ENGLAND WOMEN'S MEDICAL SOCIETY will hold its annual meeting at the Hotel Thorndike on Saturday, January 17 (note change from regular date).

Business meeting at 6 P.M.; dinner at 6.30 P.M.

A charge of $1.25 will be made for the dinner (half of its actual cost). Guests may be invited on payment of the whole cost of $2.50.

Dr. Alice Hamilton will be the guest of honor.

Please notify Dr. Emily A. Pratt, 483 Beacon Street (B. B. 8000) of your intention to be present, not later than noon, January 16.

ALICE H. BIGELOW, M.D., *Secretary.*

THE MASSACHUSETTS THERAPEUTIC MASSAGE ASSOCIATION.—The next meeting will be held at the Hotel Brunswick, Venetian Room, at 7.45 P.M., on Tuesday, January 20, 1920. Trustees meet at 7.30.

Dr. E. G. Cutler, Professor Emeritus of Clinical Medicine at Harvard Medical School, and Mr. Thomas Burns of Dr. Caines' Institute for Exercise will address the Society on "The Uses of Water in Health and Disease, Inside and Out."

Members of the medical profession are invited.

DOUGLAS GRAHAM, *President,*
AGNES J. KERR, *Secretary.*

HARVARD MEDICAL SOCIETY.—The next meeting will be held in the Peter Bent Brigham Hospital amphitheatre (Van Dyke Street entrance) Tuesday evening, January 20, at 8.15 P.M.

Program: Osler memorial meeting: Dr. W. T. Councilman, Dr. Harvey Cushing, Dr. J. H. Pratt, Dr. E. C. Streeter. Medical students and physicians are cordially invited to attend.

ELLIOTT C. CUTLER, *Secretary.*

MASSACHUSETTS GENERAL HOSPITAL.—On January 22, 1920, at 12 noon, the Out-Patient Medical Society will hold its first clinical meeting. The program is as follows:

1. Practical Modern Teaching in Heart Disease.
   Dr. Paul D. White.
2. Errors and Shortcomings in Diagnosis.
   Dr. Richard Miller.

F. A. WASHBURN, *Resident Physician.*

AMERICAN CONGRESS ON INTERNAL MEDICINE.—The American Congress on Internal Medicine, in conjunction with the American College of Physicians, will meet at Chicago on February 23 to 28, 1920.

The sessions will comprise daily clinical and laboratory demonstrations in many of Chicago's leading hospitals and teaching institutions. There will be several evening gatherings. These will be addressed by men eminent in American medicine. One of the evening meetings will embrace the Fourth Annual Convocation of the American College of Physicians.

Ethical physicians of the United States and Canada who are interested in the advancement of what is best in clinical and scientific medicine and its affiliated sciences are cordially invited to attend all sessions of the American Congress on Internal Medicine. The gatherings will be of great practical and scientific worth.

Detailed information with regard to headquarters, hotels, clinics, and scientific demonstrations may be secured by addressing Dr. Frank Smithies, Secretary-General, 1002 North Dearborn Street, Chicago, Illinois.

RECENT DEATHS.

DR. CHARLES W. PILLSBURY of Saco, Maine, died recently in his sixty-ninth year. He attended Bowdoin and Dartmouth colleges, and had practised in Saco for 45 years.

DR. WILLIAM G. BISSELL died on November 14 at the age of 49 years. Dr. Bissell had been director of the laboratories of the Buffalo Health Department for 25 years, and was at one time president of the New York State Sanitary Officers' Association. He had practised in Buffalo since his graduation from the University of Buffalo in 1892.

DR. XAVIER OSWALD WERDER died recently at his home in Pittsburgh. He was born in Switzerland in 1857. Dr. Werder received his education in schools and colleges of Pittsburgh, Maryland, New York, and in several foreign countries. He was one of the founders of the American College of Surgeons, and was well known as a surgeon and writer of medical literature.

DR. CHARLES S. WIGHT died recently at his home, Marlborough, Mass., at the age of 63. He was born at West Bethel, Maine. Dr. Wight received the degree of M.D. from the University of Tennessee and practiced medicine in Chattanooga for 17 years, later serving in the Worcester hospitals, at Berlin, N. H. He is survived by his widow and a sister, Mrs. Payson Grover of West Pepperell.

DR. ROBERT LEE RANDOLPH, son of the late Bishop Alfred Magill Randolph of Fredericksburg, Va., died recently. Dr. Randolph was a graduate of the Medical University of Maryland. He studied in Vienna, and was at one time an assistant in ophthalmology in the Royal Polyclinic in Vienna. At the time of his death, Dr. Randolph was an associate professor of clinical ophthalmology in the Medical School of Johns Hopkins University.

SIR WILLIAM OSLER died on December 29, at Oxford, England, after an illness of several months, at the age of seventy years. Dr. Osler was born at Bondhead, Ontario, Canada, on July 12, 1849. He received his early education at Trinity School, at Trinity College, and at Toronto University in Toronto. He later attended McGill University in Montreal and studied at University College, London, and at Berlin and Vienna. Dr. Osler then returned to Canada and for ten years was professor of the Institutes of Medicine at McGill University. At the end of that period, in 1884, he became professor of clinical medicine in the University of Pennsylvania. Five years later he went to Johns Hopkins University as professor of medicine, remaining there until 1904 when he went to England to serve as regius professor of medicine. In 1892 Dr. Osler married the widow of Dr. S. W Gross of Philadelphia, who was Miss Grace Revere of Canton, Massachusetts, who survives him. His only son was killed in action in 1917.